

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference R 4448	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/AT2004/000363	International filing date (<i>day/month/year</i>) 21.10.2004	Priority date (<i>day/month/year</i>) 23.10.2003	
International Patent Classification (IPC) or national classification and IPC B23K9/09			
Applicant FRONIUS INTERNATIONAL GMBH			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 5 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

 - international search (Rule 12.3 and 23.1(b))
 - publication of the international application (Rule 12.4)
 - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished
 the description:
 pages 1-17 _____ as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____
 the claims:
 nos. _____ as originally filed/furnished
 nos.* _____ as amended (together with any statement) under Article 19
 nos.* 1-24 received by this Authority on 23.05.2005 with letter of 20.05.2005
 nos.* _____ received by this Authority on _____
 the drawings:
 sheets 1/4-4/4 _____ as originally filed/furnished
 sheets* _____ received by this Authority on _____
 sheets* _____ received by this Authority on _____
 a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to sequence listing (*specify*): _____
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1–24	YES
	Claims	_____	NO
Inventive step (IS)	Claims	1–24	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	1–24	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

This report makes reference to the following documents:

- D1: EP-A-0 478 796 (DAIHEN CORP) 8 April 1992 (1992-04-08)
- D2: PATENT ABSTRACTS OF JAPAN Vol. 010, No. 126 (M-477), 10 May 1986 (1986-05-10) & JP 60 255276 A (MITSUBISHI JUKOGYO KK), 16 December 1985 (1985-12-16)
- D3: PATENT ABSTRACTS OF JAPAN Vol. 1995, No. 04, 31 May 1995 (1995-05-31) & JP 07 009149 A (MATSUSHITA ELECTRIC IND CO LTD), 13 January 1995 (1995-01-13)
- D4: SCHMIDT K-P: "NEW REGULATION SYSTEM FOR DOUBLE-PULSE GAS SHIELDED METAL-ARC WELDING" WELDING AND CUTTING, DEUTSCHER VERLAG FUER SCHWEISSTECHNIK, DUSSELDORF, DE, No. 3, 2002, page 117, XP001161394
- D5: DE 42 28 589 A (REHM SCHWEISTECHNIK GMBH) 3 March 1994 (1994-03-03)
- D6: DE 197 38 785 A (LEIPOLD & CO GMBH) 1 April 1999 (1999-04-01)
- D7: WO 00/64620 A (ARTELSMAIR JOSEF; FRONIUS SCHWEISSMASCH PROD (AT)) 2 November 2000

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

(2000-11 -02)

1. The subject matter of claims 1 and 15 is novel and inventive (PCT Article 33(2) and (3)).
 - 1.1 A method and a welding device like those defined in the preamble of claim 1 and claim 15 are known from the prior art; see, for example, D1 to D4.
 - 1.2 The problem to be solved by the present invention can be regarded as that of developing a method for controlling and/or regulating a welding process or a welding current source wherein the thermal balance for introducing heat into the workpiece is set and/or regulated or can be controlled. Another problem to be solved by the present application is that of creating a welding device by means of which the thermal balance for introducing heat into the workpiece can be set and/or regulated or controlled.
 - 1.3 Although documents D1 to D4 disclose a welding process (MAG welding) wherein at least one welding process phase having a high level of energy introduction is cyclically combined with a welding process phase having a low level of energy introduction, they do not disclose that the welding process phase having a low level of energy introduction

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used is a cold metal transfer phase.

D6 and D7 each disclose a welding process wherein the energy introduction takes place by means of a cold metal transfer phase. The problem to be solved in D6 is that of forming droplets, improving the transfer of the droplet from a melting electrode to the workpiece, and improving the bath formation, whereas the problem to be solved in D7 is that of producing a method and a device for igniting and maintaining an electric arc whereby the quality of the welding process is improved.

None of the available documents would prompt a person skilled in the art to combine documents D1 to D4 with D6 or D7 in order to solve the problem indicated in point 1.2.

2. Claims 2 to 14 and 16 to 24 are dependent on claims 1 and 15, respectively, and therefore likewise meet the PCT requirements for novelty and inventive step.

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PCT/AT2004/000363**Box No. VII Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

1. Contrary to the requirements of PCT Rule 5.1(a)(ii), the description neither cites documents D1 to D4 and D6 to D7 nor indicates the relevant prior art contained therein.